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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/519,408	03/03/2000	Takao Nakamura	3905	7245

21553 7590 12/17/2001

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EXAMINER

LOUIE, WAI SING

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 12/17/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/519,408

Applicant(s)

NAKAMURA ET AL.

Examiner

Wai-Sing Louie

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The 35 U.S.C. 112, first and second paragraph rejections are withdrawn in view of the amendment in paper no. 9.
2. The 35 U.S.C. 102(b) rejections are withdrawn in view of the amendment in paper no. 9.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishibashi et al. (US 5,617,446) in view of Kazuyoshi et al. (JP 06-318406) and Woodard et al. (US 6,255,003).

With regard to claim 1, Ishibashi et al. disclose a semiconductor light-emitting device (col. 3, line 8 to col. 9, line 58 and fig. 2) comprising:

- A substrate 1 provided with an n-type lower electrode on the back surface;
- A light-emitting layer 6 provided on the substrate;
- A p-type semiconductor layer 7 provided on the light-emitting layer;
- An Au thin film 14 provided on the p-type semiconductor layer, but Ishibashi et al. do not disclose the thickness of the Au thin film is 1 to 3 nm. However, Woodard et al. teach that gold has an effective thickness as thin as one tenth of 3 Å thick monolayer (even through it is not a continuous layer). Woodard et al.

disclose the common thickness of a transparent gold thin film is about 1 to 10 Å (Woodard col. 5, lines 20-28) and teach that the film is transparent. Hence, it would have been obvious to use the thickness shown by Woodard in order to provide a conductive, transparent film.

- Ishibashi et al. do not disclose an n-type transparent conductor film formed on the Au thin film. However, Kazuyoshi et al. disclose ITO type transparent conductive layer, which is made of In and Zn compound. Kazuyoshi et al. teach that this compound is transparent, conductive, resistant to heat and high humidity, and is suitable to be a transparent electrode (page 3, paragraph [0018]). Hence, it would have been obvious at the time the invention was made to add Kazuyoshi's InO/ZnO layer to Ishibashi's transparent Au thin film. ITO is an n-type transparent conductive film.

With regard to claims 4-6, please see the description of record.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishibashi et al. (US 5,617,446) modified by Kazuyoshi et al. (JP 06-318406) as applied to claim 1 above, and further in view of Mei et al. (US 6,107,641). Please see the description of record.

Response to Arguments

Applicant's arguments filed 9/11/01 have been fully considered but they are not persuasive.

- Applicant argues that there is no suggestion or motivation toward the combination of reference Ishibashi et al. (US 5,617,446) and reference Kazuyoshi et al. (JP 06-318406). Ishibashi et al. provides the light-emitting device having a thin gold film as electrode layer. Kazuyoshi et al. teach that ITO compound is transparent, conductive, resistant to heat and high humidity, and is suitable to be a transparent electrode (page 3, paragraph [0018]). Therefore, this teaching provides the obviousness and motivation. The combination of both references is proper.
- Applicant argues that the Au thin film has a thickness of 1-3 nm is not a routine optimization. However, reference Woodard et al. (US 6,255,003) disclose transparent gold thin film electrode of 1-3 nm thick is common in the art.
- Applicant argues that the upper layer is "flattened" and the prior art does not address this limitation. Kazuyoshi et al. teach the sputtering technique, which could produce a smooth surface. Applicant does not claim the high degree of smoothness as outlined in page 14, lines 11-14. One with ordinary skill in the art would assume the sputtering technique is "flattened" enough.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wai-Sing Louie whose telephone number is (703) 305-0474. The examiner can normally be reached on 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Douglas A. Wille
Patent Examiner



wsl

December 13, 2001